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ABSTRACT

Previous research has indicated that Type A's have a higher need to control their environments, and respond more reactively to control loss than Type B's. To clarify the role of information processing in the control relinquishment decisions of Type A's and B's, 147 male and female college students took part in a problem solving experiment. Pairs of subjects worked independently on an initial 25 trial task and received feedback indicating that their partner had performed at a comparable or superior level. On a second task subjects combined their efforts, but only one could work on a given trial, necessitating a decision concerning how many trials each would attempt to solve. One third of the subjects made this decision prior to completing an evaluation of the initial performances. Another third completed the evaluation first without knowing they would subsequently make a control decision. The final third of the subjects comleted their evaluations knowing that a control decision would follow. Results indicated that when the evaluations were completed last, or, when the evaluations were completed first but without knowledge of the impending decision, Type A's relative to Type B's failed to relinquish control to a superior partner. When the evaluations were completed with knowledge of an impending control decision, Type A's and B's did not differ in their decisions. These results suggest that, under appropriate conditions, Type A's engage in an automatic or mindless decision strategy with potentially maladaptive consequences. (Author/JAC)

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Relinquishment of Control and the Type A Behavior Pattern: Causal Role of Performance Evaluation

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Abstract

This study investigated the role of mindlessness-mindfulness in the control relinquishment decisions of Type As and Bs. Pairs of subjects worked independently on an initial 25 trial task and received feedback indicating that their partner had performed at a comparable or superior level. On a second task subjects combined their efforts, but only one could work on a given trial, necessitating a decision concerning how many trials each would attempt to solve. One third of the subjects made this decision prior to completing an evaluation of the initial performances. Another third completed the evaluation first without knowing they would subsequently make a control decision. The final third of the subjects completed their evaluations knowing that a control decision would follow. Results indicated that when the evaluations were completed last, or, when the evaluations were completed first but without knowledge of the impending decision, Type As relative to Type Bs failed to relinquish control to a superior partner. When the evaluations were completed with knowledge of an impending control decision, Type As and Bs did not differ in their decisions. These results suggest that, under appropriate conditions, Type As engage in an automatic or mindless decision strategy with potentially maladaptive consequences.

Relinquishment of Control and the Type A Behavior Pattern: Causal Role of Performance Evaluation

Previous investigations indicate that Type As (characterized by a hard-driving, competitive, time urgent lifestyle) have a higher need to control their environments, and respond more reactively to control loss, than Type Bs (characterized by a more relaxed behavioral orientation).[1] For example, Type As have been found to exhibit learned helplessness more readily than Type Bs in response to salient and extensive uncontrollable stimuli (e.g., Brunson & Matthews, 1981; Krantz, Glass, & Snyder, 1974; Glass, 1977; Matthews, 1979). Furthermore, Type As respond more reactively than Type Bs to a threat to an important freedom (e.g., Carver, 1980; Rhodewalt & Comer, 1982; Rhodewalt & Davison, 1983). Extending this research, Strube and Werner (1983) investigated differences between Type As and Bs in their willingness to relinquish task control to another person. Their results indicated that Type As were more reluctant than Type Bs to relinquish control, and, that this reluctance persisted even in the face of evidence indicating the clear performance superiority of the other person (see also Miller, Lack, & Asroff, 1983). In addition, Type As made attributions about the other person's performance that indicated a lower belief in the likelihood of future replication, making lower relinquishment appear sensible. As Strube and Werner point out, these results have important implications for work settings where low delegation has been found to result in poor productivity and job stress (Beach, 1975; Cooper & Marshall, 1977; Dowling & Sayles, 1978; Pfiffner, 1958). The purpose of the present study was to clarify the role of information processing in the control relinquishment decisions of Type As and Bs.

The sequence of events in the Strube and Werner study does not allow identification of the causal role of performance evaluation in the relinquishment of control. In that study, pairs of subjects performed an initial task independently, received feedback about their own and their partner's performance, and then were asked to decide how

many trials of a subsequent cooperative task they wished to give to their partner (only one person could work on any one trial of the second task). Only after making these decisions did subjects provide performance evaluations for the first task.

At least two distinct processes are plausible with respect to the results obtained by Strube and Werner. On the one hand, it's possible that Type As and Bs carefully considered prior performance information, arrived at fundamentally different interpretations of that information, and allocated subsequent task control in a manner following logically from those evaluations. In this case, the postdecision evaluations accurately reflect the predecision differences in the interpretations of performance by Type As and Bs. That Type As and Bs can differ in their perception and evaluation of events has been demonstrated in several studies. Strube and Lott (1983) have found that while both Type As and Bs exhibit an illusion of control (Langer, 1975) when viewing their own noncontingent behavior, only Type Bs do so when viewing the noncontingent responses of another person. Thus Type As differ in their evaluation of the same event when their perspective shifts. Studies have also found differences in the attribution styles of Type As and Bs (Miller et al., 1983, Strube, 1983), again suggesting fundamental differences in interpretations of performance.

Alternately, Type As may have allocated control in a relatively automatic or "mindless" fashion, keeping more control than Type Bs as a function of their greater control needs. When asked to account for their decisions, Type As may have justified their actions through post hoc manipulation of performance evaluations. Past research indicates that behavior that is well learned and often repeated can become scriptlike (Abelson, 1981) in nature, and given an appropriate cueing event, can run to completion with little or no conscious thought (e.g., Chanowitz & Langer, 1980; Langer, 1978; Langer, Blank, & Chanowitz, 1978). Perhaps Type As have a "control decision script" which leads to automatic retention of control when such decisions arise. That Type As have the

potential for such a script is suggested by research indicating that the Type A pattern is well developed in early childhood (Matthews, 1979; Matthews & Angulo, 1980), providing for substantial experience with control-relevant decisions over a lifetime, and the development of rigid decision rules where personal control is important. In addition, Type As have an "I can do it better" attitude (Dembroski & MacDougall, 1978) providing the basis for a "keep control" decision strategy. Type Bs, on the other hand, are less likely to develop such a decision rule given their lesser concern for control.

The major purpose of the present study was to distinguish which process (mindfulness-mindlessness) underlies the relinquishment differences exhibited by Type As and Bs. Subjects were given performance feedback on an initial problem-solving task which indicated that a partner was either similar or superior in task capabilities. Subsequently, subjects were asked to evaluate the performances, and to allocate control over a replication of the task where the participants' efforts would be combined (cf. Strube & Werner, 1983). The timing of the request for performance evaluations, and the knowledge of an impending control decision, were varied systematically. Replicating the procedure used by Strube and Werner, one third of the subjects made their control decisions first and then were asked to provide performance evaluations (Evaluation Last condition). Another third of the subjects were asked to provide performance evaluations first, knowing that they would have to make a subsequent relinquishment decision (Evaluation First/Decision Knowledgeable condition). A final third made their performance evaluations first, but without knowledge of the impending control decision (Evaluation First/Decision Ignorant condition). If the relinquishment differences between Type As and Bs reflect a relatively automatic, mindless process, then differences should emerge when subjects are simply asked to make a decision (Evaluation Last condition), but not when they must first carefully consider and evaluate prior performance information (Evaluation First conditions). This follows from the fact that mindful consideration of

relevant information disrupts the automaticity of the script (Langer & Weinman, 1981). If, on the other hand, careful processing (but different interpretations) precedes the decisions of Type As and Bs, then comparable relinquishment differences between Type As and Bs should be obtained in all conditions.

The decision knowledge manipulation was included to test a more subtle aspect of automatic, or mindless behavior. Chanowitz and Langer (1981) have demonstrated that when information is processed as irrelevant, but that information becomes relevant later, its importance will be ignored. It is as if people prematurely commit themselves to an initial evaluation of information and are reluctant to deviate from that commitment later: They behave automatically, based on their initial assessment. If Type As allocate control mindlessly, then their forced attention to performance information without knowledge of its relevance for a control decision should not be sufficient to disrupt the subsequent decision process. Thus a more compelling demonstration of automaticity requires relinquishment differences between Type As and Bs in the Evaluation Last and Evaluation First/Decision Ignorant conditions, but not in the Evaluation First/Decision Knowledgeable condition. Where Type A/B differences emerged, they were expected to replicate the pattern found by Strube and Werner (1983): With increasingly superior performances on the initial task by the partner, Type Bs but not Type As should relinquish larger amounts of control.

Finally, this study had several additional minor purposes. Whereas Strube and Werner confined their investigation to males, the present study examined if relinquishment decisions were comparable for males and females. Miller, Lack, and Asroff (1983) found that in an aversive situation, relinquishment differences between Type As and Bs were more pronounced for males than for females. We sought to replicate this finding in a nonaversive setting, and to investigate any information processing concomitants. We also examined the mediating influence of mood on relinquishment decisions by collecting

a mood measure immediately after initial task performance. It may be that Type As and Bs have different affective reactions to performance feedback and these influence subsequent decisions. Finally, we examined what role competitiveness plays in the relinquishment process. Perhaps Type As interpret the cooperative task as being competitive in nature and fail to relinquish control accordingly. Although past research suggests that Type As are not more likely than Type Bs to misperceive the nature of cooperative settings (Gotay, 1981), the generality of this finding remains to be demonstrated.

Method

Overview

Male and female undergraduate volunteers, participating in same-sex pairs, took part in what was described as a problem-solving experiment. During an initial phase, each subject worked independently on a 25 trial choice discrimination task, and received feedback about their own performance (13 correct) and that of their partner (either 14, 18, or 23 correct, randomly determined). Subjects were then told they would team up on another 25 trials of the task where only one person would be able to work on any one trial. This required a decision concerning which subject would work on each of the next 25 trials. Each subject was led to believe that s/he had been chosen to make that decision (subjects were in separate rooms). In addition, all subjects completed performance attribution and quality ratings for their own and their partner's performance on the first task. The timing of this measure, and the knowledge of the impending control relinquishment decision, were varied. A random third of the subjects completed the performance evaluations first, without knowledge that they would be required to allocate control over the next task. Another third also made their evaluations first, but knew they would also be making a subsequent control decision. A final third made the relinquishment decision first, then evaluated the initial task performances.

Subjects

One hundred and forty-seven undergraduate volunteers (64 males, 83 females) participated in the study in exchange for $4.00. All subjects completed the Jenkins Activity Survey (JAS), Form T (Krantz, Glass, & Snyder, 1974), a student adapted measure of the Type A pattern, immediately prior to taking part in the experiment proper. Scores on the JAS can range from 0 to 21, with higher scores indicative of Type A behavior. In the present sample, scores ranged from 0 to 17 (M = 7.22, SD = 3.40). Based on a median split (Md = 6.73), subjects were classified as Type As (scores of 7 or greater) or Type Bs (scores of 6 or less). Average age of the sample was 18.7 years.

Apparatus and Task Description

The choice discrimination task used in this study was programmed on a small computer. The task stimuli were the four symbols found on common playing cards (i.e., clubs, diamonds, hearts, spades). Each of 25 trials began with a computer generated tone and the identification of one of the symbols as the target for that trial (the target appeared for 3 seconds in the middle of the screen). The remaining symbols served as distractors. After 3 seconds, the target disappeared from the screen, and a varying number of the distractors began to appear and move randomly about the screen. From 3 to 10 seconds later a randomly determined number of target stimuli appeared on the screen and remained stationary (the distractors continued to move about the screen). The subject's task was to count the number of targets within 7 seconds. After seven seconds, the screen went blank and then prompted the subject for the number of targets. The subject entered this information into the computer. According to a predetermined schedule, subjects received feedback about their own and their partner's performances. This information was displayed on the screen, and a running total appeared at the end of each trial. All 25 trials followed the above format.

The computer program had two additional features designed to enhance the per-

ceived validity of the feedback. First, the computer stored the results of each trial, keeping running totals of actual success and failure, and their match to the predetermined feedback. If a subject was performing very poorly and failing on trials where the feedback indicated correct performance, the computer program self-adjusted and made subsequent "correct" trials easier. This was accomplished by presenting fewer distractors and fewer targets. Likewise, if subjects were performing very well and getting "incorrect" trials correct, subsequent "incorrect" trials were made more difficult. In other words, the computer adjusted the problem difficulty in an attempt to match the subject's skill level, the result being a better match of feedback to actual performance.[2] The second program feature was designed to overcome problems of suspicion concerning incorrect feedback. Whenever incorrect feedback was given, the subject was also shown a display on the screen which indicated the location of the targets (without the distractors), so subjects could see why they were incorrect. If the subject was actually incorrect in counting the targets, then the actual number of targets was shown. If, however, the subject had correctly counted the targets, then the "incorrect" display contained from 1 to 3 (randomly determined) additional targets to convince the subject that his or her count was wrong.

Feedback Manipulation

The feedback that subjects received after each trial was given according to a predetermined random order and constituted one of the independent variables (Level of Partner's Performance). Subjects were led to believe that they had achieved success on 13 trials, while the partner achieved success on 14, 18, or 23 of the 25 trials. The numerical levels of feedback were based on pilot work, and were designed to span a range of values where one could expect considerable variability in relinquishment.

Dependent Measures

The major dependent variable was the number of trials on the second task that

were relinquished to the partner. Relinquishment was measured by a check list on which subjects indicated the trials they wished to keep, and left blank those on which their partners would perform.

Immediately prior to the initial task, subjects completed an expectancy measure that asked them to predict the number of trials out of 25 on which they expected to succeed, and, to rate how important it was for them to do well on the task. Immediately after the initial task subjects completed the 36-item short form of the Nowlis Mood Adjective Check List (Nowlis, 1965). This scale is scored on 12 subdimensions that reflect a variety of affective states.

Subjects also completed a measure of their attributions for, and evaluations of, performance on the first task (both their own and their partner's). Subjects rated the quality of performance, were asked to specify the major cause for performance, and then rated that cause along the dimensions of internal-external, stable-unstable, global-specific, and controllable-uncontrollable (cf. Peterson, Semmel, Metalsky, Abramson, von Baeyer, & Seligman, 1979). Following their relinquishment decisions, subjects indicated the proportion of trials they expected themselves, and their partners, to perform successfully on the second task, and rated the confidence they had in their own and their partner's chances of success. All ratings were made on 7-point bipolar scales.

Additional measures of perceived task similarity, ability similarity (for the two tasks), attractiveness of prizes (see Procedure), and competitiveness were obtained to check on the quality of the manipulations, and the mediation of additional variables.

Procedure

Subjects were randomly assigned to one cell of a 3 (Level of Partner's Performance) x 3 (Evaluation Order/Decision Knowledge) factorial design. Pairs of same-sex subjects participated in the study and were assigned to the same condition. Subjects who knew each other were not allowed to participate together. Upon arrival to the experi-

ment, subjects were seated in separate rooms to eliminate interaction, and to reduce any potential suspicion about feedback and decision manipulations. The experimenter communicated with subjects from a third room via an intercom system. The purpose of the study was described to the subjects as examining the "types of problem solving strategies used during effective and ineffective information processing". The task was briefly described, and subjects were then instructed to complete the JAS (ostensibly to provide background information to be used in interpreting their performance). This scale was not scored until the conclusion of the study to insure that the experimenter remained blind to subject status on the Type A/B variable. When the subjects completed the JAS, the experimenter explained the task in detail (as outlined in Apparatus and Task Description section), allowing subjects to familiarize themselves with the keyboard and to complete one practice trial. Subjects were then informed that the task in which they were about to engage was a sensitive and valid measure of information processing abilities, and that in the past, high performance had been related to high intelligence and academic potential. The purpose of this was to maximize task involvement and effort.

In order to avoid arousing suspicion as to the true purpose of the task, and consistent with the cover story, subjects were asked to verbalize their problem solving strategies during the 25 trials. Their attention was directed to a tape recorder on their right, which was started at the beginning of the 25 trials. The "importance" of the recordings, and that they speak up during the task, were emphasized. Subjects then completed the expectancy measure which asked them to predict the number of trials out of 25 on which they expected to succeed, and, to rate how important it was for them to do well on the task. The subjects then proceeded through the 25 trials (approximately 15 minutes), after which they completed the mood measure.

At this point the procedure varied depending on the Evaluation Order/Decision Knowledge condition to which the subjects had been assigned.

Evaluation First/Decision Ignorant. In this condition, subjects completed their evaluations and attributions for initial task performance before and without knowledge of the relinquishment decision.

Evaluation First/Decision Knowledgeable. These subjects also completed the evaluation and attribution measures prior to the relinquishment decision, but after the nature of their future decision was described to them.

Evaluation Last. In this condition, subjects made their relinquishment decisions first, then they completed the initial task evaluation and attribution measures.

In describing the second phase of the study, the experimenter told the subjects that they would now team up and combine their efforts on another 25 trials of the choice-discrimination task. It was explained that the object of the second task was for the team to do as well as possible. In this way, team vs. individual strategies could be examined. To emphasize the cooperative nature of the second task, subjects were told that if the team's performance was in the top 10% for the entire study, they would be eligible for one of three prizes: a clock-radio, a digital watch, or a calculator. Subjects were then informed that only one person at a time would be allowed to perform on any given trial. This requirement necessitated a decision as to who would work on each of the next 25 trials. The experimenter explained that this decision would be made by one of the subjects. In actuality, each subject was led to believe that s/he was the decision-maker. The experimenter stated that prior to the experiment one of the rooms had been chosen at random and a star had been placed on the back of the brown envelope on the table in that room (both rooms had a brown envelope on the table). The star signified who would be the decision-maker. Each subject was asked to examine the envelope in his or her room, and if it contained a star, to signal the experimenter. In fact, both envelopes had stars so that both subjects signalled that they were the decision-maker. Next, the experimenter communicated instructions that were meant to further convince each

subject that he or she alone had been chosen as decision-maker. Immediately upon receiving the affirmative responses from the subjects, the experimenter addressed the decision-maker specifically: "Ok, Subject #2, you will be the decision-maker for the next task." The words "Subject 2" were prominently displayed on the computer terminals of both subjects. The instructions that followed depended on Evaluation Order/Decision Knowledge condition. In all cases, the completion of the decision checklist and the attribution/evaluation measures concluded the experimental session. Subjects completed a short postexperimental questionnaire, were debriefed, and excused.

During the debriefing session, subjects received a thorough description of the purpose of the study. It was emphasized that intelligence and academic potential have not been correlated with this particular task, and that their information processing abilities were irrelevant for the purposes of the study. Finally, subjects were told that a raffle (in lieu of a prize for high teamwork) would be held at the end of the study. Examination of responses on the postexperimental questionnaire indicated that subjects were unaware of the true purpose of the experiment, were unsuspicious of the feedback manipulations, and did not question the integrity of their choice as decision-maker.

Results

Analyses were conducted using 2(Type A/B) x 3(Level of Partner's Performance) x 3(Evaluation Order/Decision Knowledge) analyses of variance with least squares solution for unequal n.[3] Preliminary analyses indicated the absence of reliable sex differences. Thus, all analyses reported below are collapsed across sex of subject. Because several subjects failed to complete one or more measures, the degrees of freedom vary slightly in the following analyses.

Manipulation Checks

To determine whether Type As and Bs were randomly assigned to conditions, an analysis of variance of scores from the JAS was performed. Only the effect of Type A/B

was significant ($F(1,129) = 289.70$, $p < .001$), indicating that Type As and Bs were distributed equally among the experimental conditions.

A check on the manipulation of the partner's level of performance is provided by the quality of performance ratings. Analyses indicated a highly significant main effect for Level of Partner's Performance ($F(2,129) = 131.12$, $p < .001$). Examination of means indicated that partners who achieved success on 14 ($M = 4.63$), 18 ($M = 5.92$), and 23 ($M = 6.78$) of the 25 trials were rated successively higher on quality of performance. Equally important, each mean is significantly different from all other means ($p < .05$, Newman-Keuls procedure), indicating the effectiveness of each level of this manipulation.

Several additional findings are pertinent to interpretation of results. First, overall subjects appeared to take the task seriously. The modal rating for the importance of doing well on the task was 5 on a 7-point scale ($M = 4.49$). The prizes available for high team performance were also found to be attractive with a modal rating of 6 ($M = 4.18$). Relevant to the presumed applicability of the feedback on the first task to the relinquishment decisions for the second task are results indicating that subjects perceived the two tasks to be fairly similar ($M = 3.45$, $Mo = 4.0$, reversed scale), and the abilities required for both tasks as quite similar ($M = 2.53$, $Mo = 1.0$, reversed scale). Finally, subjects expected to achieve success on an average of 15.01 of the initial trials ($Mo = 14.98$). As a result, subjects' own feedback did not provide a serious violation of these expectations.

Relinquishment of Control

Analysis of the number of trials relinquished yielded a significant main effect for Level of Partner's Performance ($F(1,128) = 26.00$, $p < .001$) and a reliable interaction between Type A/B, Level of Partner's Performance, and Evaluation Order/Decision Knowledge ($F(4,128) = 2.81$, $p < .05$). Table 1 contains the relevant means for interpreting this triple interaction. In order to clarify the nature of this finding the simple interac-

tion between Type A/B and Level of Partner's Performance was examined within each Evaluation Order/Decision Knowledge condition (Kirk, 1968).

Within the Evaluation First/Decision Ignorant condition, results indicated a significant Type A/B x Level of Partner's Performance interaction ($F(2,128) = 3.14$, $p < .05$). Further analyses (see Table 1) indicated that the interaction was due primarily to the reliable increase in trials relinquished by Type Bs, but not As, as partner's performance increased. As a result, Type Bs relinquished significantly more trials than Type As when the partner had performed at a superior level (i.e., 23 correct).

Analyses within the Evaluation First/Decision Knowledgeable condition did not yield a significant Type A/B x Level of Partner's Performance interaction ($F(2,128) = 1.35$). Both Type As and Bs relinquished greater numbers of trials to partners who performed at successively higher levels. In other words, when asked to carefully consider the information from the first task, with knowledge that a control decision was pending, Type As and Bs did not differ in their relinquishment decisions.

The Evaluation Last condition, which provides a replication of Strube and Werner (1983), yielded a Type A/B x Level of Partner's Performance interaction that approached significance ($F(2,128) = 2.94$, $p = .056$). The shape of this interaction is remarkably similar to that obtained by Strube and Werner, and is due primarily to the reliable increase in relinquishment across levels of partner's performance for Type Bs, but not Type As. When the partner performed at a superior level, Type As and Bs differed significantly in their allocation of control.

Taken together, the above data suggest the following. Under conditions conducive to automatic processing of information (i.e., Evaluation Last), where careful attention to performance information is not required, Type As and Bs differ fundamentally in their control decisions. Type As appear to adhere to a rigid "keep control" strategy, while Type Bs seem to use a "best person wins" strategy. (In fact, Type Bs used this strategy

regardless of the situation). A different pattern emerges, however, when subjects are asked to consider carefully the prior information before making a decision. When subjects were knowledgeable of the decision, both Type As and Bs relinquished more trials to better partners. The forced attention to the partner's performance caused Type As to consider the evidence more carefully and thus to make a more rational decision. However, the results for the condition where the subjects were not aware of the impending decision indicate that careful attention to performance information alone is insufficient to cause Type As to relinquish control. These results are consistent with the "mindlessness" interpretation of the Type A/B differences in relinquishment. Information that is initially processed without knowledge of its future relevance, is not used effectively when the relevance is revealed.

Insert Table 1 about here

Performance Evaluations

Perceived Quality. The only effect to emerge for self-ratings was a Type A/B x Evaluation Order/Decision Knowledge interaction ($F(2,129) = 6.27$, $p < .005$). The means for this interaction are displayed in Table 2. As can be seen, Type As but not Bs varied considerably in the ratings of their own performance as a function of evaluation condition. Consistent with their reluctance to relinquish control, Type As saw their own performance as being better when they made their ratings last, or when they made their ratings without knowledge of an impending control decision, than when they rated their performance knowing they would subsequently make a control decision. These findings occurred despite the fact that all subjects received the same performance feedback (i.e., 13 correct).

Insert Table 2 about here

Type As and Bs did not differentially rate the quality of the partner's performance. This highlights an important characteristic of automatic or mindless processing. Individuals who process information mindlessly attend to stimuli, but do not process it appropriately. Thus, both Type As and Bs recognized the higher quality of the superior partner's performance (see Manipulation Checks), but Type As failed to utilize this information under certain conditions (cf. Strube & Werner, 1983).

Attribution Ratings. Initial examination of the attribution dimensions indicated a high degree of intercorrelation. As a result, composite indices were created for the subjects' ratings of their own, and their partner's, causal structures. The dimensions of internal-external, stable-unstable, global-specific, and controllable-uncontrollable were combined such that high scores reflect a cause rated as being more internal, stable, global, and controllable. In other words, a higher score reflects a belief on the subject's part that a given performance is relatively more diagnostic of future performance.

Analysis of subjects' ratings of their partner's performance indicated a significant main effect for Type A/B ($F(1,128) = 4.78$, $p < .05$) and a significant main effect for Level of Partner's Performance ($F(2,128) = 3.61$, $p < .05$). Examination of means indicated that Type As ($M = 20.74$) rated the partner's performance as being more diagnostic than did Type Bs ($M = 19.47$). In addition, as the performance of the partner increased from average ($M = 19.01$) through moderate ($M = 20.17$) to superior ($M = 21.15$) there was a concomitant rise in rated diagnosticity.

Subjects' ratings of their own performance indicated a marginal Type A/B x Evaluation Order/Decision Knowledge interaction ($F(2,128) = 2.61$, $p = .077$). This result must be interpreted with caution. It is interesting to note, however, that the pattern of means

resembles that obtained for perceived quality of performance (see Table 2). The evaluation order/decision knowledge manipulation had little influence on the ratings of Type Bs. Type As, however, rated their performance as more diagnostic when they made the ratings last, and when they made the ratings first but without knowledge of the future decision, than when they provided the ratings with knowledge of the decision.

Task Expectancies

Following the relinquishment decision, subjects rated their confidence in future success on the second task, and indicated their expected proportion of successful trials, for both themselves and their partners. Analysis of these measures yielded significant main effects for Level of Partner's Performance for self-confidence ($F(2,122) = 13.04$, $p < .001$), confidence in the partner ($F(2,122) = 41.35$, $p < .001$), and expected proportion of successful trials by the partner ($F(2,122) = 20.64$, $p < .001$). As the partner's performance increased from average, through moderate, to superior there were concomitant increases in confidence in the partner (Means 4.91, 5.59, and 6.52, respectively) and expected proportion of successful trials by the partner (Means .639, .706, and .829, respectively), and, decreases in self-confidence (Means 4.32, 4.16, and 3.11, respectively).

Perceived Competitiveness

Because Type As typically exhibit competitiveness, we included an item tapping this dimension to explore any possible mediating effects. Subjects were asked the extent to which competitiveness influenced their relinquishment decisions. Analyses of these ratings indicated a significant main effect for Type A/B ($F(1,122) = 5.92$, $p < .025$) which indicated that Type As rated their decisions as being more due to competitiveness ($M = 2.85$) than did Type Bs ($M = 2.22$). This main effect was further qualified by a marginally significant Type A/B x Level of Partner's Performance interaction ($F(1,122) = 2.64$, $p = .075$). It is consistent with the competitive nature of Type As that their perceived competitiveness increased as the partner's level of performance increased (Means 2.18, 3.07,

and 3.30 respectively); Type Bs exhibited no such trend (Means 2.30, 2.46, 1.90 respectively).

Mood

The subscales of the mood checklist were found to be substantially intercorrelated. To avoid redundancy, a mood composite was formed and analyzed via a 2(Type A/B) x 3(Level of Partner's Performance) analysis of variance (recall that mood was measured prior to the evaluation order/decision knowledge manipulation). Results indicated a reliable main effect for Level of Partner's Performance ($F(2,129) = 9.29$, $p < .001$). Rated mood did not differ among subjects whose partners performed at an average ($M = 24.25$) or moderate level ($M = 24.60$). Subjects whose partners performed at a superior level, however, rated their mood more negatively ($M = 22.60$) than either of the other two groups ($ps < .05$, Newman-Keuls procedure).

The Rationality of Relinquishment Decisions

The failure of Type As to relinquish control to superior partners in the Evaluation Last and Evaluation First/Decision Ignorant conditions could be interpreted as irrational from a team success standpoint. That is, Type As appear willing to ignore crucial information in order to maintain control, which would appear to have the effect of degrading the team's chances of success. However, as Strube and Werner (1983) point out, there are two levels at which rationality of control decisions must be examined.

One approach is to assume that the feedback should be used in a strict probabilistic manner. Thus a subject who achieves success on 52% of the trials on the first task (i.e., 13 correct), in the absence of any other information, should expect to succeed on 52% of any trials kept on the second task. A partner who succeeds on 92% of the trials on the first task (i.e., 23 correct) should be expected to succeed on 92% of the trials relinquished to him/her on the second task. If S = proportion of successful trials by the subject on the first task, P = proportion of successful trials by the partner on the first

task, and R = number of trials relinquished, then the expected number of successful trials (ES) by the team on the second task can be estimated by: ES = (P x R) + ((25 - R) x S) or more conveniently: ES = (25 x S) + (R x (P - S)). Obviously, when P > S the best strategy is to let the partner have all the trials on the second task. This strategy, however, was rarely used (only 7 subjects relinquished all trials). Even the less optimal, though adequate strategy of relinquishing a clear majority of trials was rare. Thus one conclusion might be that most subjects do not use sensible relinquishment strategies, and Type As are more prone to such irrationality than are Type Bs.

In contrast, it's quite possible that relinquishment decisions make more sense or appear more rational when the subjects' actual expectancies are considered in calculating expected team success. From the subject's perspective, a given decision may appear quite sensible. To address this issue, expected team success scores were calculated by using the formula given above, and substituting the subject's expected proportion of successful trials on the second task for S, the expected proportion of successful trials for the partner on the second task for P, and the number of trials relinquished for R. These expected team success scores were then analyzed via ANOVA. Only one significant effect emerged. Expected team success varied as a function of Level of Partner's Performance ($F(2,121) = 17.02$, $p < .001$); greater expected team success accompanied better initial performance by the partner. The absence of any other significant effects (all remaining $Fs \leq 1.83$, $ps > .16$) indicates that despite their differing relinquishment strategies, Type As and Bs expected comparable levels of team success. Thus, from a subjective standpoint, Type As and Bs used equally rational decision strategies.

Discussion

In summary, the results indicate that the relinquishment decisions of Type As, but not Type Bs, depend upon whether decision-relevant information is considered prior to a decision, and, whether the relevance of the information is recognized. When decision

relevant information is not considered carefully prior to a decision, or, when the relevance of the information for a control decision is not known at the time it is considered, Type As, but not Type Bs, refuse to relinquish a majority of trials to superior partners. In contrast, when information is considered prior to a relinquishment decision, and the relevance of that information is known, Type As and Bs do not differ in their decisions. This pattern of results is consistent with the use of an automatic or mindless decision strategy by Type As in the former two conditions, but a thoughtful strategy in the latter. Type Bs were uninfluenced by the Evaluation Order/Decision Knowledge manipulation and utilized a "best person wins" strategy in all situations.

Results also indicated that the self perceptions of performance quality provided by Type As varied as a function of Evaluation Order/Decision Knowledge, while those of Type Bs were relatively constant. Despite the fact that the subjects' level of performance was held constant in this study, Type As rated that performance as being of higher quality when the rating occurred after the relinquishment decision, or before the decision but without knowledge of its relevance, than when the rating was made with knowledge of the impending decision. These results parallel the relinquishment data and suggest that a distorted self-perception of competence may accompany the automatic relinquishment decisions of Type As. Only careful consideration of information with full knowledge of its relevance could override this bias. It must also be recognized, however, that despite differences in control relinquishment and ratings of competence between Type As and Bs, no differences were obtained on a measure of expected team success. In other words, on a subjective level, Type As and Bs utilized equally rational decision strategies (cf. Strube & Werner, 1983).

It is important to note, however, that the present findings diverge from those of Strube and Werner (1983) in one respect. Strube and Werner found the self-report differences to emerge on ratings of the partner's performance. In the present study, the

key differences were found on ratings of the subject's own performance. The basis for this divergence is unclear. Perhaps subtle differences in the samples or procedures are responsible. Or, it may be the case that the subject of the evaluation differences (self vs. others) is governed by an important substantive variable. Additional research will be necessary to clarify this discrepancy. What is clear is that under appropriate conditions Type As and Bs diverge in their evaluations of performance with potentially important consequences for decision-making.

Finally, the present study indicated that males and females did not differ in their relinquishment decisions. These results stand in contrast to those obtained by Miller et al. (1983) who found a more pronounced reluctance to relinquish control by Type As than Bs among males compared to females. A key difference between the two studies is that the controlling response in the Miller et al. investigation avoided an aversive noise blast while in the present study the controlling response facilitated the goal of team success. Whether the aversiveness of the situation actually underlies any sex differences must await future research. In addition to addressing the issue of sex differences, this study examined the mediating role of mood and perceived competitiveness. Mood was found to decrease as the partner's performance increased, but no differences between Type As and Bs were obtained. Thus differential affective responses to performance feedback do not appear to underlie the obtained relinquishment differences. Competitiveness, on the other hand, does appear to play some part in the relinquishment strategies of Type As and Bs. Overall, Type As reported that competitiveness influenced their relinquishment decisions to a greater extent than did Type Bs, and, this tendency increased the better the partner had performed. These results suggest that one aspect of the Type As' relinquishment decision is a misperception of a cooperative situation (team performance) as being competitive (cf. Gotay, 1981).

Taken together, the results of this study have several important implications.

First, it seems likely that many control decisions are characterized by conditions conducive to mindless decision-making. Decisions are often made on the spur of the moment; performances are often evaluated without a clear vision of the future relevance of those evaluations. Under these conditions, Type As can be expected to not give up much control, even when it would be potentially beneficial to do so. This reluctance may contribute to the longer workdays, constant deadline pressures, and heavy workloads that characterize the Type As' work environment (e.g., Burke & Weir, 1980; Friedman & Rosenman, 1974; Howard, Cunningham, & Rechnitzer, 1977). By refusing to utilize the work efforts of others, Type As may increase their job demands and workloads needlessly. Furthermore, the careful consideration of information will not alter the Type As' reluctance to relinquish control if the relevance of the information is not recognized. Type As may prematurely commit themselves to a biased interpretation of information (at least their own performance) and mindlessly adhere to this interpretation despite a shift in its relevance (cf. Chanowitz & Langer, 1981). Finally, it is unlikely that Type As will self-diagnose a poor relinquishment strategy given that they expect their decisions to have favorable consequences. What appears to be necessary is an interruption of the Type As' automatic allocation of control. When information is considered carefully and its relevance is recognized, Type As and Bs do not differ in their relinquishment decisions. In fact, there is a tendency for Type As to give more trials to a superior partner than do Type Bs (see Table 1). An important task for future research will be to explore possible means of insuring thoughtful decision-making by Type As in control relevant situations. Such research will not only aid the understanding of Type A behavior but also provide potential interventions for reducing work stress.

More generally, the present results have implications for the actual amount of control exhibited by Type As and Bs. As Chanowitz and Langer (1980) point out, a person engaged in mindless or automatic processing is less able to adjust to any moment-to-

moment fluctuations in the environment: They are less flexible, and exhibit less actual control over the environment, than individuals engaged in careful processing. A similar point is made by Rothbaum, Weisz, and Snyder (1982) who suggest that a judicious choice of primary (self) control and secondary (environment/other) control is more adaptive than rigid reliance on primary control. Thus, although Type As may have a higher need for control, their use of a mindless control allocation strategy may result in their having less actual control than Type Bs. In other words, Type As may be placing themselves in the paradoxical position of creating less controllable situations as a consequence of their rigid control allocation strategies. This possibility deserves more attention since it suggests that Type As may actually create much of the uncontrollable stress they find so aversive.

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Footnotes

[1]The control perspective is one of several that have been used to conceptualize Type A behavior (see Matthews, 1982, for a review).

[2]A listing of the computer program is available from the first author on request.

[3]Although subject pairs were separated throughout the experimental sessions, an initial analysis was conducted to test formally for dependencies in the scores of pairmates. No dependencies were indicated, thus subjects are treated as independent in the major analyses.

Table 1

Relinquishment of Trials as a function of Type A/B, Level of Partner's Performance, and Evaluation Order/Decision Knowledge

	Level of Partner's Performance			
	14 Correct	18 Correct	23 Correct	F^a
Evaluation First/Decision Ignorant				
Type A	13.37	14.83	15.27	1.09
Type B	13.04	12.88	18.33	9.14**
F^b	.05	1.74	4.61*	
Evaluation First/Decision Knowledgeable				
Type A	11.85	14.57	19.58	10.83**
Type B	12.70	14.51	17.00	4.87**
F^b	.25	.00	3.17	
Evaluation Last				
Type A	13.00	14.05	14.85	.83
Type B	12.66	14.90	19.46	9.59**
F^b	.05	.27	9.90*	

[a]Simple main effects of Level of Partner's Performance

[b]Simple main effects of Type A/B

* $p < .05$

** $p < .01$

Table 2

Self Perceptions of Performance Quality and Diagnosticity as a function of Type A/B and Evaluation Order/Decision Knowledge

	Type A	Type B
Quality		
Evaluation First/Decision Ignorant	3.50_{b}	3.42_{b}
Evaluation First/Decision Knowledgeable	2.91_{c}	$3.75_{a,b}$
Evaluation Last	3.96_{a}	$3.27_{b,c}$
Diagnosticity		
Evaluation First/Decision Ignorant	19.33	18.17
Evaluation First/Decision Knowledgeable	17.72	18.57
Evaluation Last	20.44	18.08

Note. Means with different subscripts are significantly different ($p < .05$) by the Newman-Keuls procedure.